DOCUMENT RESUME

ED 046 620 RE 003 179

AUTHOR Parke, Margaret B.
TITLE Toward a Technological Breakthrough to Literacy.
INSTITUTION City Univ. of New York, Brooklyn, N.Y. Brooklyn Coll.
PUB DATE Aug 70
NOTE 42p.

EDRS PRICE EDRS Price MF-$0.65 HC-$3.29
DESCRIPTORS Adult Basic Education, *Educational Technology, Educational Television, *Educational Trends, Elementary School Students, Functional Illiteracy, *Illiteracy, Illiterate Adults, Instructional Materials, *Literacy Education, *Reading Programs, Secondary School Students, Teacher Education, Teaching Machines

ABSTRACT

The UNESCO Courier's estimate of 700 million totally illiterate persons world wide and estimate of 10 million functionally illiterate persons in the United States are cited. Advantages to being literate are discussed which pertain to the welfare of the individual himself and society in general. The 16 trends in the development of literacy programs in the United States noted in the report cover the total illiterate population spanning all age groups. Some of the current trends described revolve around teaching approaches, teaching personnel and the involvement of specialists from allied fields, the use of printed materials as well as hardware, research emphasis, and evaluation of the entire field. Considered separately is the technological equipment currently being used and possibilities for its future use. Attention is called to the dangers inherent in the technological revolution as well as the benefits that can result from meeting the needs of people on an individual basis. Recommendations are made tc the universities and colleges on the basis of research findings assembled in the 1960's. Programs concerned with teacher education as it relates to literacy instruction are listed, but the need for a nationwide expansion of such programs is emphasized. A bibliography is included. (DH)

ED046620

BROOKLYN COLLEGE
THE CITY UNIVERSITY OF NEW YORK
Department of Education

TOWARD A TECHNOLOGICAL BREAKTHROUGH TO LITERACY

Margaret B. Parke
Professor

U. S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OE EDUCATION POSITION OR POLICY.

RE003 179

August 1970

TOWARD A TECHNOLOGICAL BREAKTHROUGH TO LITERACY

	Page
I. The Status of Illiteracy	1
A. Definition	1
B. Distribution	2
C. Causes of Illiteracy	3
II. The Importance of Education for Literacy	4
III. Trends in the Development of Literacy Programs	5
A. A World-wide Drive to Reduce Illiteracy	5
B. The "Right-to-Read" Target for the 70's in the United States	7
C. Emphasis on Systematic Instruction within Levels of Literacy	8
D. Literacy Instruction Proceeds in a Language Arts Setting with Consideration for Dialect and Foreign Language Background	9
E. Literacy Instruction in the Framework of Interest and Experience	10
F. Stress on Teacher over a Single Textbook Method	11
G. Emphasis on Decoding Process in the Initial Stages of Literacy Instruction	11
H. A Personal, Individualized Approach to Teaching	11
I. Instruction of Community Women as Helpers and Paraprofessionals	12
J. Pooling of Resources	13
K. Spurt in the Development and Publication of Printed Materials	14
L. Massive Move toward the Use of Hardware	16
M. Teaching Outside of Schools as Well as in Them	16
N. Emphasis on Research	16
O. Evaluation of Goals, Outcomes, Materials, Programs, Process, and Teacher Effectiveness with Concern for Accountability to the Public	17
P. Involvement of Specialists in Allied Areas in the Literacy Movement	18
IV. Technological Advances	18
A. Radio and Telephone	20
B. Television	20
C. Films, Loops, and Kinescopes	22
D. Filmstrips and Transparencies	22
E. Tapes, Casettes, and Records	23
F. Teaching Machines - Electrical and Non-electrical	23
V. The Role of Universities and Teacher Colleges	25
Bibliography	33

BROOKLYN COLLEGE
THE CITY UNIVERSITY OF NEW YORK
Department of Education

TOWARD A TECHNOLOGICAL BREAKTHROUGH TO LITERACY

MARGARET B. PARKE
Professor, Brooklyn College

"Democracy and illiteracy cannot stand side by side. One of the two must go if democracy is to prove a blessing to herself and mankind." James Yen, quoted by Bernard (9:176)

Literacy is a human right, a fundamental educational right. The target of the 60's was getting to the moon. The target of the 70's should be the maximum achievement of literacy for all people in keeping with their own abilities. Indeed, this should be education's moon project. With the technical advances now available, the goal is well within reach. Is the nation willing to make the investment in time, energy, and money that was required to land men on the moon?

THE STATUS OF ILLITERACY

Definition

By dictionary definition, literacy means "ability to read and write". This is a vague definition which people of the world are struggling to clarify. The Committee on Standardization of Educational Statistics defined a literate person as one "who can read with understanding and write a short simple statement on his every day life". They updated it in 1962 to "a person is literate when he has acquired the essential knowledge and skills which enable him to engage in all those activities in which literacy is required for effective functioning in his group and community". (9:166).

The term, illiterate, is not necessarily synonymous with ignorance. When Captain Cook landed in Australia years ago, he pointed out that Australia's Aborigines could live where the white man would die. They had a culture of their own in their dances, songs, pictures on bark and stone. They had a deep understanding of nature and the way it could help them sustain themselves. They had a spiritual world of their own. They had human characteristics that impelled them to care for each other. This was true also of our own American Indians. It has been true of Africans and other people of the world. Modern literature describes in an interesting way how illiterate people enjoy poetry, legend, and spiritual experiences in India, Sardinia and other nations (15). Illiterate people in ghettos and disadvantaged neighborhoods today are poor, poverty stricken people who must work hard to make a bare living or be at the mercy of the relief paymaster. Attitudes of literate people must change in relation to illiterates.

There is need for a sliding scale to denote levels of literacy. First, some people are totally illiterate. X's stand for their names in writing, and they can read nothing. They are totally at the mercy of a

scribe and reader. Secondly, there are functionally illiterate people who cannot meet the ordinary demands of life for reading and writing even though they might be able to write their own names and read some words. To be functionally literate a person should read signs, letters, the ballots in voting, employment forms, auto licenses, labels on foods in stores, catalogues, newspapers, directions, the telephone directory, medicine bottle labels and the like. He should write simple notes and letters as needed. Actually, the functionally literate person should have command of word recognition skills, be able to decode with considerable ease, and comprehend passages that involve the use of words that are commonly used in life experiences. Such skills are normally acquired by the fourth grade in school. Thirdly, some people are illiterate at higher levels. It has been estimated that some essential reading material in our current society demands an eleventh grade readability level. Even basic reading matter such as sections of newspapers, driver's manuals, and tax forms often are written at this level.

Due to the ambiguity in the definition of literacy, there is a real need for clearer identification of the functionally illiterate segment of the population in order to obtain accurate figures and statistics. Mere attendance in school for four years gives no assurance. According to Wallace (107), a person may spend 9000 hours in school and still be functionally illiterate.

Tests are available for elementary school children. Better tests are needed for functionally illiterate secondary students and adults. Otto and Ford (79) urged that standardized adult reading tests be developed to determine the level of reading competence in the adult population and to facilitate entrance into adult educational programs. They discussed word lists, readability levels, as well as sentence length and structure as they relate to the construction of such tests. Harris (46) suggested the value of a uniform method of measuring reading disability and reviewed the various numerical procedures for measuring it. He discussed strong and weak points and even illustrated consequences of using one or another of the formulas. Then he proceeded to make recommendations. Mangano (70) discussed GED or General Equivalency Diploma Examinations in relation to the measurement of reading ability. The Adult Basic Learning Examination, ABLE, published by Harcourt World Brace, is written in two levels. Level I measures achievement comparable to that of grades 2 to 5 while Level II deals with grade 5 to 7 reading achievement. It tests vocabulary, listening, reading comprehension, spelling as well as arithmetic computation and problem solving. Both grade norms and percentile scores are given.

The first step toward solving the problem of illiteracy lies, therefore, in the adequate definition of the problem, the preparation of suitable measuring devices, and the clarification of the extent of the problem.

Distribution

For reasons described previously, figures concerned with the amount of illiteracy vary considerably from one source to another and are not too reliable. Any discussion of figures must take these factors into account.

According to the Unesco Currier (60) there are 700 million persons in the world "whose only access to knowledge is through the spoken word". In spite of educational efforts, numbers remain high due to the population explosion. From 1961-66, the number of illiterates increased by something like 200 millions (60). Of 373 million school children, only about 30% of them are in school. The majority of those who are in school will not complete the primary course and will most likely relapse into illiteracy (60).

As a result of the President's Task Force for the War against Poverty, it is evident that there are millions of illiterates and uneducated men and women in this country. Commissioner Allen (2) claimed that one out of four have significant reading deficiencies on a nationwide basis, half of the unemployed youth are functionally illiterate, three-fourths of juvenile offenders in New York City are two or more years retarded in reading, and more than three million adults are illiterate. The estimates of other writers have been even higher. Cortright (21) stated that ten million adults were functionally illiterate according to the 1950 census, and that ten million had less than a sixth grade education according to the 1960 census. Nearly one-third of sixty million labor force have less than an eighth grade education. Wallace (107) figured on ten million being functionally illiterate of which three million are foreign born or of foreign ancestry, three million are Blacks, and four million are native-born whites. In the New York Times of May 19, Jack Rosenthal reported on estimates made by Harman of Harvard University. "Half of the nations adults may lack the literacy necessary to master . . . . driving manuals, newspapers and job applications". Much of such material requires a tenth or eleventh grade education. In his Chicago survey, Harman found that half of those with sixth grade education and above were functionally illiterate. These are tragic statistics for a nation that sends so much money out of the country.

In most of the world, the largest group of illiterates is to be found in the rural areas. In industrial nations, the concentration of illiterates in large cities presents more and more problems each year.

Causes

The causes for illiteracy are varied and deeply seated in the culture. In some cultures, education is not available to all; schools are lacking as well as teachers and materials of instruction.

In other cultures such as our own, there is such an abundance of materials and equipment as to cause confusion in the classroom and lead teachers to plead for simplification, particularly when the materials are based upon conflicting philosophical premises. Often the essence of the problem is more than reading and writing disability. Learners must discover the ways and modes of a strikingly different culture during the time they are learning the basic skills. Their own self-image is important, rapport with the teacher, and the respect that each has for the other.

The problem of transiency must be faced. The education of children of migrant workers is disturbed seriously as they move from place to place. Migrants from Puerto Rico differ from former immigrants of European countries in that they can more easily and cheaply return to their native land and

they tend to travel back and forth. Within cities, each time a family moves as much as a few blocks a change of school may be involved. Teachers no sooner start to concentrate on a child's problems when he is gone. Turnover in some city schools rises above 50% in a year. This great mobility of the population leads to lack of continuity of school experiences from one community to another and seriously impairs the education of children, particularly those whose learning rate is low originally. Increased heterogeneity in the school population has produced another problem. This results in a wider variety of individual differences to be coped with in a school situation. Pressure from psychologists to keep children with the agemates and community pressure to keep classes heterogeneous rather than to group children by ability has resulted in wide ranges of ability in individual classrooms. In a third grade, for instance, there may be non-readers on one end of the scale and children reading at an eighth grade level at the other extreme. When reading age varies in this way, so does spelling, writing, and achievement in most of the other curriculum areas.

Added to all of these problems has been the dramatic broadening of human knowledge which calls for greater reading skills and efficiency. The advent of teaching machines for independent instruction demands that individuals know how to read in order to direct their own learning through materials available to them.

Goldberg (33) analyzed the arguments of those who would place all the blame for illiteracy on schools as well as the frustration of educators. Community leaders are saying that teachers are not teaching reading and writing, that too little is expected of children, that disadvantaged children work in the oldest of school plants where less money is spent on education and where less qualified and experienced teachers are employed. Such teachers have lack of faith in children, assume that they can't learn, and let them sit. In these situations, "learners sense what is happening to them, internalize the teachers' expectations, and fulfill the prophecies". On the other hand, teachers describe professional frustration. There exists disharmony between school expectations and those of lower class homes and neighborhoods. There's disparity between the child's learning readiness and what the teacher normally expects. Motivation to learn is lacking. There are language deficiencies which include dialect problems, differences in the reward systems of cultures, and numerous other sociological and psychological factors to be taken into account. To these can be added factors of health, auditory and visual perception, nourishment, emotional stability, and personal reaction to success and failure.

Obviously the situation is extremely complicated. Analysis of causes for failure must proceed as carefully in this area as it does on a moon trip. Only then will success appear on the horizon.

THE IMPORTANCE OF EDUCATION FOR LITERACY

"Literacy as the prerequisite of education is the most important of the rights of man" (100:18). It is essential for self-realization, self-direction, the improvement of personal and family hygiene as well as in the control of serious social problems dealing with narcotics and the population explosion. Literate adults raise home and community standards and tend to

produce more enlightened citizens.

Porter (83) considered literacy to be a force that liberates an individual from poverty and privation, thus enabling him to have an equal opportunity to enjoy social justice, live in dignity, and participate in a viable political system. Literate parents appear to have a stronger parental interest and deeper concern for the education of their children, while illiteracy tends to breed illiteracy. In general, literacy leads people to economically independent and socially productive lives whereas illiteracy forces them into a narrow, binding world where they experience little of the world which literate people take for granted.

The road illiterates travel in our society is marked continually by barriers to success. It leads to misery, poverty, unemployment, alienation, and even crime. Wallace (107) has dramatically described what it is like to be one who cannot read a written sign, a newspaper, an advertisement or a letter nor write a simple note or letter to a dear one far removed.

Illiterate adults present a serious social problem. As years go by, they are less and less employable. There are now fewer than half as many jobs for these people as there were in 1938. The outlook for the future is even dimmer, for automation intensifies the problem. A higher level of intelligence and literacy is constantly being demanded. There is a paradox in the shortage of educated and technically trained manpower on the one hand and heavy unemployment on the other hand. This is why Unesco regards literacy programs as a first step in the creation of qualified manpower and as a good investment.

In addition to the economic advantages are the political advantages. To vote, a citizen should read and write. While it is true that information today can be gained more easily by radio and television through listening than formerly, reading allows more time for individuals to ponder over ideas as they are taken in. The process is a different one.

Universal literacy cannot in itself make the world better, richer, or more peaceful; that depends on people. However, literacy opens the door to other learning. It gives people a chance which they would not otherwise have. What matters is how they use it. Education must, therefore, involve much more than teaching people to read and write. Early efforts in our country were tied with Americanization courses. Much is done today by tying literacy programs with work and occupational endeavors. Motivation to read and write develops in experience.

Harlan (44) described how Russia struggled with the problem of literacy since 1926. First compulsory measures were taken. People were fined for not attending classes or food categories were reduced, or they were excluded from labor unions. Encouragement was given to workers. Classes of all kinds were organized. Deadlines for the elimination of illiteracy were set. Anyone not seeking to improve himself was considered lazy - one of the worst censures a Soviet citizen could receive. By giving priority to the problem, their efforts have paid off.

No matter what the cost may be, it is imperative that the leaders of our nation take steps to insure the eradication of illiteracy in the next decade. A democratic society must be judged by what it does for the least among us.

TRENDS IN THE DEVELOPMENT OF LITERACY PROGRAMS

A drive for a literate population today must start with children in the nursery school and continue through the adult population. Concentration is on a "good start" in school, continuation of progress throughout the school years, and attention to the problems of adult illiterates. There s should be no weak spots in the total plan of education concerned with teaching people to read and write. Definite trends are now in evidence to help <u>all</u> people to be culturally absorbed in society.

A World-wide Drive to Reduce Illiteracy

There is an international demand among the emerging nations of the world for the development of literacy programs which grows out of a genuine need, unprecedented in scope. (15,100,101). World committees of a wide variety of types have been hard at work. Five main categories of projects are now operating in the world (100). The United Nations Educational, Scientific and Cultural Organization (100) has raised five significant problems which are concerned with:

1. The financing of literacy programs.

2. The training of technical experts to plan scientifically and produce materials; the training and retraining of staff to serve at all levels both in field programs and supporting technical services. (Since literacy is a specialization, the diplomas and certificates obtained after training courses should be officially recognized).

3. The production of teaching and training media for work-oriented, functional literacy programs as well as reading materials for new literates.

4. More scientific evaluation.

5. The transition from the experimental phase to the extensive application of functional literacy and the integration of functional literacy into agricultural and industrial development schemes in areas of high literacy.

A round table of bankers, economists, and financiers on literacy, (100) convened in Rome by Unesco in 1969, came forth with some solutions to these problems, namely:

1. Functional literacy programs should be financed from individual resources of enterprises and from loans made by national and international banks.

2. Universities, especially those in high illiteracy areas, should be encouraged to provide specialized training of recognized academic status in regular degree courses and in special courses.

3. Programs should take into account personnel training, media production, action research and evaluation in the construction and use of teaching materials.

4. Pilot projects of the Unesco World Literacy Programs should develop new methods and materials, produce prototype media for functional literacy, and explore ways of integrating these into comprehensive literacy programs.

5. Integrating functional literacy with technical and vocational training and projects. (This was marked as the most difficult to achieve.)

Other large organizations have contributed in various ways.

The Teheran Conference of 1965 (15) made a solemn and urgent appeal to arouse public opinion and to exert influence on responsible leaders as an important approach to eradicating illiteracy from our planet. A Unesco publication, "Literacy 1965-67" (15) indicated the methods used by different countries since 1965 and the new strategy which is shaping the literacy movement of the world. Delon (15) reported that Unesco is departing from past procedures of attempting to solve the problem of illiteracy on a world-wide scale, and adopting a more selective approach with crash training programs for groups where incentive for literacy is high and where there is reasonable promise of results. Blaug of London University (100:17) described the new approach as "intensive rather than extensive, selective rather than diffusive, work-oriented rather than culturally oriented". It favors the use of diversified primers, assists the teacher with new educational media, and draws in teachers from allied fields.

The Right-to-Read Target of the 70's in the United States

Literacy education for adults has been emphasized from period to period in the history of the United States. Often the programs were combined with Americanization classes. Currently the emphasis is different, and the scope has been broadened. In addition to the continued need for attention to those who do not speak English, a surprising number of illiterate students are coming through the schools, and vast numbers need retraining to obtain jobs as automation increases and the need for unskilled labor decreases.

The most dramatic legislation for literacy education came in 1964 when the Economic Opportunity Act set up the anti-poverty programs (20). Following this, there were a significant number of NDEA institutes for the training of children, youth and adults. Many of them were very innovative in design and in the methods used. Some of these referred to by Corbin and Crosley (17) were: Ungraded Primary and Basal Individualized Reading, Remedial Reading, Power Reading, Literacy Training for Adults, ITA Reading Project, Remedial Reading Project-Creative Writing, Language Laboratory

Reading Program, Summer Institute for Teachers of Disadvantaged Youth, Composition Project, Pre-kindergarten and Developmental Reading, Adult Literacy Project, Spelling Project, Remedial Education for Adults, Great Cities School Improvement Project, Multi-cultural Readers, Operation Motivation, Project Literacy, Bridge Project, Mobilization for Youth, Craft Project for Comparing Reading Approaches in First Grade Teaching of Disadvantaged Children, Haryou After-school Study Program, More Effective Schools, Elementary School Library Program, Basic Education, Chattanooga Area Literacy Movement, Inc., and USOE Cooperative Research Project: Reading Instruction for Spanish-speaking School Beginners.

By the end of 1965, approximately five thousand persons in the Volunteers in Service to America (VISTA) were involved in the war on poverty as tutors, counselor's aides, and the like. Volunteer reading tutors played an important role.

The Ford Foundation has supported experiments in teaching and learning with millions of dollars. The Carnegie Corporation has recognized reading as one of the most controversial areas in elementary and secondary education and has therefore supported research in it. Since 1964 the federal government has subsidized summer institutes for teachers of English and reading. The Higher Education Act of 1965 provided university tuition for career teachers and teacher interns to improve instruction for culturally deprived students.

In 1970, Commissioner Allen (2) attempted to stir Congress, states and communities to action by his dramatic appeal to establish the "Right to Read" as an educational moon target for the 70's. Representative Lloyd Meeds, a democrat, is quoted by Beavan (8) as saying that "this commitment is not backed by the hardware necessary to put it across". Fry (35) referred to the federal support for this project as "inadequate" and indicated that the Presidential Council had not yet been appointed, that an office had not been set aside for the project, and that institutions are still waiting for a "sharply curtailed budget to be passed by Congress". Some educators even wonder why the term "literacy" has not been used to include ability to write as well as to read. Nevertheless, one major meeting was called in Washington, and the mobilization of resources in the nation's colleges has already been started as an initial step toward the goal. Much more must be done in "marshalling the leadership, motivation, and methods" needed to move speedily into this important plane of accomplishment (23:216).

Emphasis on Systematic Instruction within Levels of Literacy

To be successful, programs should emphasize levels of literacy with systematic instruction at each level. Teacher guides are, therefore, tending to point out what to teach children at different growth levels rather than outcomes for a grade in which there may be children at various stages of growth. In addition, they give methods to be used. The pre-school kindergarten level is not considered too early to begin since literacy is essentially an extension of the use of language from speaking and listening to reading and writing. Head Start Programs andtalevision programs such as the Denver Pre-reading Project (73) and Sesame Street (16) exemplify efforts that start early in the life of children in an endeavor to lay the proper language background for reading and to motivate them.

A preponderance of innovations has been made in the last ten years to improve initial instruction in reading with six and seven-year-olds in the field of methods as well as in materials. These have been marked by (a) emphasis on decoding (14), (b) change of content in readers to appeal to lower class children as well as to the middle upper class and to different ethnic groups, (c) change of illustrations from middle class whites to people more representative of the total population, (d) less stress on the use of most-used words in the selection of vocabulary for the books, (e) the introduction of talking books whereby children might listen and learn to read with a minimum of assistance from an adult, (f) improved use of newspapers written at an easy level, and (g) improvement in manipulative materials to aid in word mastery. The extended use of manuscript writing in lower grades has greatly facilitated children's early writing. Lloyd (63) experimented with typewriting as reinforcement to reading and writing in the intermediate grades. Some effort has been made to supply easy reading material for children in the middle and upper grades and in secondary school if they have not mastered the essentials of reading, but much more must be done. Too often, young people cease to learn at this stage because of neglected language handicaps, discouragement, and inappropriate materials as well as instruction. Highly structured programs dealing with cognitive and linguistic skills are proving to be fruitful.

Haramati (43) described in detail how the Israeli campaign starts in areas of highest illiteracy and proceeds in three different stages to accommodate adults at different levels of literacy.

Literacy Instruction Proceeds in a Language Arts Setting with Concern for Dialect and Other Language Background

Dale (22:211) has strongly impressed the idea that "the future of reading is closely bound up with the future of writing". Improvement of writing helps to improve reading and vice versa. Poor, dull, limp, or illegible writing is hard to read. Word attack skills can be taught through spelling as well as through reading. There are even those who advocate that word attack skills should be taught chiefly through spelling. One system of reading is called "The Writing Road to Reading".

Reading and writing are related in terms of comprehension as well as mechanical aspects. Word study and concept development aid both reading and writing. It is not the artificial, irrelevant study of words that is important, but the study of words in context, the reading of them and their use in sentences. Sentence patterns, word usage, punctuation, and capitalization are additional language arts skills to be mastered as an aid in both reading and writing. The teaching of reading to the exclusion of the other language arts skills is a highly questionable procedure. Linguists will probably have much to contribute in this respect in the future.

Similarly, growth in reading and writing are dependent on growth in speaking and listening. Literacy instruction in this country has frequently been tied with the teaching of English as a second language (109). It is easier to become literate in one's mother tongue than in a foreign language. It also seems easier for a person who is literate in one language to become literate in another. If a person is compelled to use a language in which

he does not think and express himself naturally, his self-confidence may be sapped, his communication handicapped, and his thinking confused. While illiterate persons may have a rich, expressive manner of communicating with their peers, they tend to communicate in a "restrictive code" and frequently lack the "formal" language in which books are written. This tends to retard "transition from concrete to abstract modes" of thinking (33:359), and influences comprehension of printed materials.

Recently, much attention has been given to problems of dialects as they relate to the teaching of reading. One such study is that of Hagerman (40). Baratz, Shuy, Goodman, and Stewart have published widely in this field. They have been chiefly concerned with disadvantaged Negroes, and particularly with their speech patterns, sound system, vocabulary, and syntax. But other dialects must be considered in addition to the northern urban Negro such as southern mountain (Appalachian), Spanish American, American Indian, Hawaiian pidgin, southern rural (Negro and white), and Acadian English.

Questions such as these arise: Shall teaching be done in the learner's own dialect? How is the teacher to proceed when different dialects are represented in the same class? Certainly the teacher must be trained in understanding each child's language patterns. That is a first step. Few teacher training materials are available for this purpose. Much help can be obtained from the report of the Wisconsin Research and Development Center for Cognitive Learning under the U.S. Office of Education Grant No. 5-10-54. Similarly, dialect and spelling problems must be considered. Basically, research must show what is the relationship between sounds and letters in American English. Paul Hanna, in a study published in full by the U.S.O.E., titled Phoneme-Grapheme Correspondences as Cues to Spelling Improvement, is one answer. However, generalizations concerning word patterns are upset by dialects.

Literacy Instruction in the Framework of Interest and Experience

"An interest-oriented reading philosophy dealing with today's problems" is more desirable than the pure academic approach of the past" (27:27). "Extensive use of dramatics, music, and non-academic activities" has been found helpful (33:359). In fact, there appears to be a need to provide experiences and/or relate to learners' experiences at every step along the way. There is a strong call for the revival of experience-oriented curricula such as were found in the experimental schools of the 20's and 30's.

News and notes of Educational Technology: The Computer and Education for March 1970 reported that "Snoopy" and "Charlie Brown" have replaced "Little Red Riding Hood" and "The Three Little Pigs" as reading material at Parker Elementary School, Billerica, Massachusetts where first and second graders are learning to use a computer. Youngsters develop vocabulary by answering multiple choice questions based on the exploits of the popular comic strip characters. Children compose their own introductions and endings to stories while using some of the new words encountered in the tale of Charlie Brown and his friends. In class projects, children have experiences going to places in the community such as stores, setting up stores, talking about them, writing about their experiences, and then reading what they write.

It is fun for children to create their own stories and to read them. Even adults are successful in this kind of approach to the teaching of reading as reported by Alesi and McDonald (1). Scott Foresman has produced materials for an action-oriented program to appeal to the lowest track of ninth-graders known as ACE (Activity-Concept English). In adult literacy programs, however, instruction is more frequently tied with occupational activities and projects. The new technology can help in spreading the value of such programs in new ways. Effort must be extended continually to relate what is seen and heard on the television screen with what appears in print and also with what one experiences.

Stress on the Teacher over a Single Textbook Method

Researchers emphasize the importance of the teacher over method. They place new values on the teacher over and above the system used and emphasize that there is more to literacy teaching than the selection of a single textbook series.

"A good method in the hands of a good teacher is ideal.". (14:309) It is important for teachers to help learners see quick results, experience success as soon as possible, and relate the new skills to life and living. The teacher today must do more than learn to follow directions in a textbook. He must know the interests of learners as well as their needs and abilities. He is diagnostician, planner, counselor and guide, instructor, organizer of class activites and environment, integrator, and evaluator. He must know the world of each learner in order to help him relate what he is learning to that world. In a technological setting, a teacher may even perform new roles in supervising paraprofessionals as they work with learners individually in the use of print and/or hardware.

Emphasis on Decoding Process in the Initial Stages of Literacy Instruction

According to the research of Chall (14), the meaning-emphasis method is less desirable than the code-emphasis method in teaching, at least as far as the third-grade level. Better results in reading for meaning are obtained through programs that emphasize code at the start, but the evidence does not endorse one code-emphasis method over another. For instance, it is difficult to find clear-cut evidence that ITA is better than a systematic-phonics approach, that one systematic-phonics approach is better than another, that linguistic approaches are to be preferred or that one linguistic approach is better than another. Evidence regarding the value of different decoding systems of reading in teaching individuals who learn to read after the age of six, seven, or eight is equally difficult to find. Much may depend on the language background of each learner.

A Personal, Individualized Approach to Teaching

Researchers in the past century have discovered that "no single device, gadget, or program" is best for everybody under all kinds of conditions, in different kinds of communities, and for all times. The major question is which approach is best for each individual. To answer this question adequately, much more experimentation is called for and better tests are needed to point the way. (32:235)

The Winnetka schools, under the leadership of Carleton Washburne, were pioneering with individualized instruction in the teaching of reading as early as 1926. Teachers there tested children to determine what they were ready to read. They studied and classified children's books to determine readability level. They studied interests of children to determine which books appealed to which children. They made the first scientific study of phonograms as a step to improving the decoding system of reading. The entire system was briefly but succinctly described in a book by Washburne and Marland. (108).

During the 50's and 60's there was an intensive drive to move from mass instruction and basal reading systems to a more individualized approach to reading. Olsen's principles of "self-seeking, self-selection, and self-pacing" became the key words of the great campaign. A significant guide-book for teachers was written by Lazar and published by the New York City Board of Education. Veatch (104,105) wrote two spirited books in an attempt to sell the American Public on the need for individualizing instruction in this area. A multitude of articles appeared in periodicals which have been systematically summarized by Duker in book form published by Scarecrow.

In this approach to reading, the library becomes extremely important. School and public libraries have taken on new significance as emphasis is placed more and more on cultivating reading interests and wide reading. The systematic, self-improving dimension of this approach is intended to be less static than the procedures it replaces. It serves individuals at all levels of learning, not merely at the initial stages of learning to read. The movement is taking on new forms as modern hardware is being introduced in talking books, talking typewriters, programmed instruction, and computers.

Introduction of Community Women as Helpers and Paraprofessionals

During the days in which President Johnson was attempting to establish a "Great Society", money was provided to bring community women into the schools and volunteers were also invited. One of their assignments came to be helping non-readers to read. This movement was predicated on the assumptions that "each one shall teach one", that the teaching of reading is a highly individual matter, that the reader needs someone to listen to him as he puts his newly acquired skills to use, that teachers need assistance, and that jobs can be provided for people with less training.

Workshops have been set up to show parents how to help their children. This trend of the 60's was in reverse of that advocated in the 40's and 50's when all parents were instructed "to keep hands off the teaching of reading, writing, and spelling" because these areas were distinctly the province of the schools. Parents and teachers are now partners in the education of children.

A flood of materials appeared on the market to help untrained people educate children. Nancy Larrick published her third edition of Parent's Guide to Children's Reading. New types of television programs (16, 50, 66, 73)) provided parents with forthright instruction on how to

assist learners in acquiring readiness to read and how to teach reading at various levels. In other words, instruction in the teaching of reading is ceasing to be the prerogative of a teachers' college. It has been moving into the public domain.

The teacher began to see new dimensions in his role as classroom teacher, for a classroom aid needed attention as well as the children. These people could, however, be trained quickly to deal with machines and hardware which teachers had little experience in handling thus far. It was apparent that change was taking place in a technological age. Whether this was desirable or undesirable, evaluation had little to reveal.

Pooling of Resources

This age is characterized by the pooling of resources, the like of which has never before been known in the history of mankind. Publishers of printed materials and producers of all types of hardware are combining funds, equipment, and personnel for bigger and better business in the educational field. Industry is intent upon making drastic changes in the educational world. The campaign against illiteracy is now fortified with some significant audio-visual materials, the ease of mass communication, and the international flow of literature. International and national organizations, public and private, have committed themselves to tackling literacy in the framework of educational problems. They are recognizing that the expansion of primary education is insufficient since children who return to illiterate homes rapidly fall back into illiteracy. Literate parents tend to keep children in school and decrease the number of dropouts. Unesco has been mobilizing world forces (15,100,101). The World Confederation of Organizations of the Teaching Profession has reacted to the need since 1960 (67). National governments, states, and local governments have been contributing, but much more should be done in pooling resources for common causes.

Centers to conduct research and disseminate information are springing up around the country such as the Center for Urban Education in New York City (25), the Center for Applied Linguistics in Washington which set up a Clearing House for Literacy, and the Educational Resources Information Center (ERIC), clearing house for English and reading of the U.S. Office of Education, Organizations such as the International Reading Association (52) and National Council of Teachers of English (17) have been actively engaged in studying situations and making compilations of what is being done to meet needs today. Local school systems, too, are beginning to find new ways of cataloguing innovations as is evidenced in Ideas in Education (64) put out by New York City in a 4 x 6 packet of cards. Similarly, the Grade Teacher (35) has produced pages of available materials in a form that can be cut out, mounted on cards, and catalogued. In all, thirty-five basal reading programs are described, over one hundred materials of a supplementary nature, and eighteen machine and computer assisted programs. One of the most significant sources for literacy activities is a list of books for adult classes and new literates distributed by the American Library Association's Adult Services Division in Chicago (69).

When services such as those described here are provided centrally, the efforts of many people and groups throughout the nation are spared hours and hours of work. The future, however, calls for even greater coordination of effort.

Spurt in the Development and Publication of Printed Materials

There has been a most significant change and spurt in the development of literacy materials in the 60's. A review of basal reading materials described in the Grade Teacher article (35) indicates that reading series have departed from writing merely for middle-class white, suburban children and are now preparing materials that appeal to urban people, Blacks and other races, as well as the economically disadvantaged. It is now possible to find interracial casts of characters. No longer do all children in books look as though they are descendants of people who came on the Mayflower.

Readers need a chance to relate in some way to what they read so many innovative ideas concerned with helping children decode have appeared on the market. Too often reading and spelling textbooks are developed in isolation when they should be more closely related for strong literacy programs. Furthermore, conflicts arise between courses of study produced by school systems which emphasize the experiential approach to learning combined with attention to the most-used words at the initial stage of reading and spelling. Linguistic approaches, based on word patterns are built upon a different philosophy. Teachers who try to follow both sets of directions become confused without understanding why they are confused.

For the middle and upper grades, new reading materials are being developed which require limited reading skill but contain sophisticated content. Goldberg (33) described The Turner-Livingston Reading Series of six paperbacks which deal with problems of teen-agers and a series of situations requiring telephone communication known as When People Talk on the Telephone. Corbin and Crosby (17) listed many others which they described in relation to programs listed previously. Brocki (10) gave a vivid description of new literature for inner-city students. He claimed that most inner city, junior-senior high school students who are disadvantaged to begin with are subjected to books that are "left-overs, reprints and snips written for middle-class readers". He explained how they proceeded to write their own materials. They taped stories. Students read from books as they listened to the tapes with great enthusiasm. They wrote stories in which they kept racial elements only when they were deeply part of the story. They wrote stories in part and asked the students to finish them. They got students deeply involved in judging what they liked and disliked. They tried to keep the vocabulary simple but did not hesitate to use hard words when easy ones would not suffice. Emphasis was on "standard living language" rather than the "language of yesteryear". They needed content that was relatively mature, appealing, interesting, but written at a simple level. Since attendance was irregular, they needed selections that could be introduced, read, and discussed in 45 minutes. It was apparent that improvement came when the materials led the students to want to read and touched them with "the stuff of life, death, greed, kindness, self-respect, adventure, love, happiness, delight, and lots of hope".

Publishers of weekly school readers of various types are to be complimented for the contribution they have made through the years in producing simplified reading materials regarding the news of the day. There are some who advocate that a part of daily newspapers should be written in simplified form to accommodate people whose level of literacy is low. Such a move would help them to keep on reading and learning when this is not possible with newspapers as they are written today. Johnson (56) enthusiastically referred to the newspaper as a "new every day textbook".

Many excellent suggestions are available to aid teachers of illiterates at the adolescent and adult levels. Witty (109) described principles and practices followed in the instruction of illiterate and non-English speaking men during World War II. Laubauch (61) summarized a wealth of experience in promoting literacy throughout the world. Gray (36) applied his extensive knowledge concerning the teaching of reading and writing to the improvement of literacy. Fitzgerald (31) gave an account of programs for adult illiterates in selected areas.

Huus (51) described four outstanding programs. LIFT, meaning literacy instruction for Texas, was carried on in 29 centers near Dallas in 1965. LARK, literacy for adults and related knowledge, was initiated by Wallace (107) in Washington for migrant workers. The progress of Operation Second Chance, conducted by the New York City Bureau of Community Education during the summer of 1963 has been explained by Alesi and McDonald (1) in most favorable terms. The instructors made use of the experience approach, discussion, word study, and class stories which were edited by the teachers and read by the class. Duplicated stories became the workbooks of students. Topics such as the following were included: Taxes, Union, Vacations, Getting along with Others, Social Security, and Application Blanks. Operation Alphabet was the fourth program. It is further described by Luke (66) as "literacy through television". Additional programs of this type will be discussed in the next section.

Practical and useful handbooks for teaching adult illiterates have been written by Burnet (11), Cortright (19), Gudschinsky (39), Otto and Ford (79), and Wallace (107). A very recent book published by Boyd and Fraser of San Francisco, entitled Literacy Education for Adolescents and Adults: A Teacher's Resource Book offers three chapters of diagnostic and instructional materials which are free from copyright. In general, these handbooks tend to describe some of the problems of illiterates and basic principles to be applied in teaching them. They suggest materials to use and provide guidelines for selecting such materials. Usually they give an account of methods which the authors have had success in using and refer the reader to other sources.

Older members of society are given literacy instruction in the hope that they, in turn, will help the younger ones move in the same direction.

Massive Move toward the Use of Hardware Alone and in Combination with Printed Materials

The stress on individualized instruction has brought with it a movement to provide hardware to assist individuals to teach themselves through the use of talking books, tapes, computers, talking typewriters and the like. Visual aids in the form of slides, transparencies, films, loops, radios and television have been added to classrooms and homes to motivate learning and to provide for it. This trend will be described in greater detail in the next section of the report.

Teaching outside of School as Well as in It

It is not uncommon in various parts of the world to find people gathered in a square observing television. Learning, done at home, under the heading of a correspondence course, has long been an accepted procedure (30). The radio and television have brought education into homes on a big scale, and new ways are being found to promote literacy through these media (16, 51, 66, 73, 80). Storefronts have been opened to neighborhood children for study during the summer and after-school hours. These have been run by paid and volunteer help. Public libraries are assuming a new role in sponsoring literacy programs (69). Industry and labor unions, too, have provided literacy programs. Schools have developed cooperative programs with industry for job training and with community agencies. The telephone company has moved into the area of educating shut-ins. Even in prisons, attempts are made to provide literacy training.

Emphasis on Research

Today, researchers are frustrated and confused by the sheer volume of research material available, the difficulty of getting at it, and of evaluating it when much of it tends to be conflicting in nature.

Hayes (48) summarized needed research in literacy teaching: descriptive linguistics, studies in experimental psychology, socio-economic studies, studies of strategies, and techniques of organizing and administering literacy programs. Fortunately, the United States Office of Education through its Educational Resources Information Center (ERIC) has provided a vast treasury of new information regarding the teaching of reading and English. The Clearinghouse on Reading contributes from seventeen journals. Summaries from these journals are sent to CCM in New York City where they are processed along with the contributions of other ERIC clearinghouses. Recently CCM has offered three new services to reading specialists, namely: Current Literature Awareness Service Series (CLASS): Reading, Recent Research in Reading, a Bibliography for 1966-69, the Reading Micro-library. The National Council of Teachers of English contributes to the summarization of research in the language arts.

Corbin and Crosby (17) have described most adequately the status of research in the teaching of English as they found it in disadvantaged areas throughout the nation.

Another valuable source book is that published by Rutgers University School of Library Service (88). It contains a bibliography of systems, networks, centers, libraries, copying equipment, storage, retrieval, use of materials, personnel support and numerous other topics of interest to persons concerned with the development of literacy and communication programs in an age of technology. Spaulding (93) foresees the need for "longitudinal interdisciplinary research" to assess the institution as well as building problems involved if innovations are to be introduced effectively and if economic and educational implications are to be studied over a period of time in relation to the organization and administration of literacy programs and the effects of such programs on the economy as well as on the people. Barnes (7) has pointed out what is perhaps the weakest link in literacy research. There is need for basic and applied research in adult literacy education to counteract the conglomeration of programs and give new direction in this area with respect to technological advances.

Evaluation of Goals, Outcomes, Materials, Programs, and Teacher Effectiveness with Concern for Accountability to the Public

In addition to the need for better coordination of effort and improved research, there is grave weakness in evaluation. Even when the goals are clear and the outcomes should be equally clear, there is often little to show for energy expended. Evaluation techniques and measuring devices are inadequate or improperly used, projects are not continued long enough to really judge their value, students drop out in such great numbers as to make results unreliable.

Great progress has been made in developing more suitable books and reading materials for lower class, disadvantaged learners who function at low literacy levels. How effectively such materials raise vocabulary and comprehension levels and how they stimulate further reading remains to be examined more carefully as a result of practice and research.

Evaluation of programs has met with difficulties because teachers inject their own personalities and procedures which they have found to work through the years. They do not generally adhere to programs as they are supposed to be carried out. To evaluate specific programs, there must be precise operational procedures, careful supervision to insure that the programs are carried out as planned, and more careful handling of data regarding persons who enter the project late and leave early. Only then will the evaluator be able to make statements with confidence about what results have been obtained.

Almost no attempt has been made to evaluate what happens when different types of printed materials are used together, particularly when the philosophies on which they are based are in conflict. Similarly, what happens when printed materials of one type are combined with programs drawn up for certain types of machines? What happens when curriculum guides (40) are at variance with materials presented to teachers for classroom use?

Evidence available at present seems to call for more and more effective teachers. Harris (45) described what qualities and training such a teacher should have. Obviously more attention must be paid to the re-evaluation of aims and programs in terms of the basic needs of individuals and society today, especially those of disadvantaged minority groups and the illiterates.

Specialists from Inter-Disciplinary Areas Are Accepting the Challenge to Promote Literacy

Spache (92) has pointed out the past and potential contribution of researchers in allied fields of knowledge essential for teaching reading. It is fortunate that specialists such as sociologists, economists, anthropologists, pediatricians, nutritionists, psychologists, ophthomologists, optometrists, audio-visual specialists, linguists, speech therapists, and technologists now have problems parallel or related to those faced by reading experts.

There are, however, obstacles to be overcome because communication is sometimes retarded by attitudes and terminology. Each discipline has tended to evolve its own vocabulary and its own standards for research. Within each of the disciplines, there are differences of opinion which tend to complicate the situation still further. For instance, a reading expert runs into serious trouble in trying to relate linguistic knowledge to the teaching of reading for linguists differ among themselves. The phonologists attack certain methods of teaching phonics as an unnatural, distorted representation of the sounds of language. One group insists on the study of whole words by patterns without emphasis on the individual parts of the word. Structural linguists insist that a knowledge of sentence structure must be insured to promote comprehension. The semanticists stress the importance of shades of meanings of words in relation to experience. Many statements of linguists as well as the materials they produce tend to add more confusion than help to the situation. As linguistic science evolves, and scientists begin to make more extensive use of previous work in related disciplines, they will probably have more and more to offer in attacking illiteracy because they are working in the total realm of language of which reading is only part. The removal of such obstacles will greatly facilitate communication among experts. It would seem that disagreements might be decreased most effectively by more cooperative interdisciplinary research in actual teaching situations and in a total school approach. These trends indicate that there is significant movement in the direction of improving literacy education, that many complicated factors are involved and that much greater effort in coordination must be expended.

TECHNOLOGICAL ADVANCES

The future of literacy in this technological age belongs to those who plan for it (90). The concept of "future-planning" is being widely explored in business, government, the military, and certain sciences. Educators, too, according to Shanes in the March 1968 issue of Phi Delta Kappan, must plan to utilize the most challenging equipment and methodologies for future-planning. There will be a need to use the new media for upgrading instruction, and in teaching teachers for literacy and fundamental education, adult education, and community development.

The various media must be woven into systems and used seriously and fully to attack urgent problems.

Revolutionary movements surround us in this era. Which will succeed in the fabulous 70's? Federal money has stimulated the production of new printed materials as well as hardware and made them available at experimental centers. It has provided paraprofessionals to assist teachers in trying out these materials even though they are sometimes in conflict with curriculum guides which teachers are also supposed to be following. Revolutionary biochemical advances, especially drug therapy begins to show some promise in improving human memory and the learning ability of remedial students. Will such students in the future be able to improve their abilities by taking pills? Will the findings of nutritionists make major contributions in preventing brain damage and impaired psychomotor functioning? Will school organization and procedures be modified so radically that teams in schools and centers, consisting of a subject specialist, paraprofessionals, and aids, will supervise independent and group study according to individual needs? How will experts succeed in working together? Will the technical revolution overshadow all others? What really will be the place of radio, TV, computers and other automatic equipment in relation to printed materials in raising the levels of literacy in this nation and in the world? Again it must be repeated that the answers lie initially with those who plan in big ways, for education is big business today.

The road ahead is wrought with dangers as well as blessings, and planners must move cautiously with eyes wide open. There are strong forces at work for and against standardization. In curriculum planning, technological values can be subordinated to human values, and there can be unfortunate tinkering with human personalities. Mere talking of experts in relation to past research will not in itself be likely to yield adequate results. People with deep insight will need to work patiently side by side in actual and varied situations before plunging into wholesale production. If computer-assisted techniques are applied to clothe obsolete goals, content, and procedures, the wrong things can be taught more rapidly, more effectively and on a more widespread basis than they are at present. A small, powerful, autocratic group can master-mind and control the content of the curriculum. Yes, there can be "inadvertent pollution" from education itself as well as from the efforts of well-meaning specialists in other disciplines.

In the discussion of separate aspects of technical equipment and accompanying programs which follow, it is essential that the reader bear in mind continually that answers to how movement should proceed in the future rests in the organization of strategies, ideas, equipment and programs not in any one area alone. Fortunately, Goodman (34) has developed an Automated Education Handbook in looseleaf form to help us keep up to date. Let us ask: What can be done most effectively through mass instruction? What is best done on an individual basis in independent study? When are combinations of the two to be preferred? What are the goals and purposes? Which materials serve each purpose best? What kinds of programs are worth preserving, and improving, or building upon? What new systems should be developed? How?

Radio and Telephone

Developments in the use of radio from language instruction have been phenomenal. Whatever is done for the improvement of general language background lays the foundation for success in the reading and writing processes. In the process of listening, vocabulary is developed, sentence patterning is acquired, standards of usage are impressed, and the comprehension of language in general is improved. For a long time radio broadcasting was a one-way process. A new dimension was added when the two-way process was introduced. Fortunately now a radio speaker can converse with a person in his far-removed audience as the rest of the world listens to the conversation. This is the kind of ingenious technique which Australians have been using for years in teaching their children in the outback to read except that it has been reinforced by the correspondence school (30, 80, 81). It is a fascinating experience to hear a teacher at a desk in Alice Springs call the class roll while children as far as 500 miles away answer her. Then the invisible reading class proceeds to operate. One child at a time reads and receives the attention of the teacher as children in a variety of other homes listen. Strange as it may seem, members of the class get to know each other by voice. The correspondence course provides the necessary homework to support the radio instruction. Obviously, this moves the children into writing which accompanies instruction in reading. These Australian techniques have spread to other parts of the world, and are currently in use in some of the emerging nations.

More recently the telephone company has pioneered in the United States in bringing school to shut-ins and the home-bound by telephone and in bringing lectures to college classes from professors who are thousands of miles away.

Television

Television, sometimes referred to as the "miracle of the electronic age", has become a powerful teaching device for mass instruction for it has added a visual dimension to the sound of the radio. It has brought education to the street corners of the world and into the homes of people--the poor and disadvantaged as well as the middle-class and wealthy. It is the most important instrument available now for providing equal educational opportunities for all people through mass instruction. In our day, it is as significant as the printing press was in the middle ages. The television teacher has a wealth of resources at his command which are far beyond anything that could be provided for every classroom teacher. In the TELSTAR project alone, that unique radio and television production center, federal and local governments, Protestant and Catholic missionaries, and private groups have combined forces to bring education to the masses. Schramm (89) has succinctly summarized the impact of communication satellites on education.

Fortunately, efforts have been exerted to channel the use of television in the direction of teaching people of all ages to read and write as well as to provide the language background needed for success in

reading and writing. Efforts are being made to use TV to motivate individuals to work for literacy and to teach with or without the use of accompanying printed materials. As yet, little has been done to test the success of such TV teaching as is being done in foreign language teaching. However, this is another possibility.

Progress in the use of this medium in the last twenty-five years has been so remarkable that it is impossible to do more than illustrate some of the accomplishments and try to visualize what more can be done in a literacy campaign. Greenhill (37) has produced a huge mimeographed volume of abstracts of research on television and film. Additional possibilities for the general use of television are reviewed by Parke (82), Torkelson and Driscoll (97), Woodward (111), and Wagoner and MacKenzie (106). ERIC has been meeting a great need in assembling research data and accounts of studies.

Even as far back as the late 40's, television was used to show parents how to teach manuscript writing to young children and to create a favorable attitude toward this form of writing which was then being introduced at the early childhood level. Closed circuit television has been used in New York and other cities to aid teachers in the teaching of reading, spelling, and English as a second language, and to assist them as well as their student teachers in a critical analysis of their own teaching techniques (84, 86). The Canadian Broadcasting Corporation and the Toronto Metropolitan Association (12) in a series entitled Let's Speak English prepared 81 lessons aimed at teaching students with 15 different language backgrounds. The U.S. Office of Information (103) prepared kinescopes known as Let's Learn English, Let's Speak English, Adventures in English for 130 television programs for use overseas with a world-wide audience.

Commercial television programs have been used to prepare young children for reading and writing, to motivate them to learn, and to assist their parents in becoming involved in the learning process (16, 73). One of the most popular television programs of the year has been Sesame Street. It has truly demonstrated the power of television to captivate old and young in learning concepts, the letters of the language, thought processes, and communication techniques. Teachers and parents had a genuine opportunity to learn much about teaching. Parent-Teacher Guides provided additional assistance especially by suggesting follow-up activities. Colleges sometimes required their students to observe the programs as an assignment. For mass teaching it had much to offer. Evaluation may indicate that more systematic instruction must come through accompanying materials with which children can work independently.

Other programs are geared specifically at adolescent-adult levels (50, 51, 66, 76, 107). They, too, tend to make printed materials available for those who wish them. Howards (50) developed a workbook for adults, Read Your Way, to be used with or without the TV program which was organized with the support of labor and business to develop education, training, and job-advancement. Sufficient effort has been expended to point the way and to demonstrate that visual literacy has a definite role to play in upgrading people's ability to read and write. Studies are

needed to determine why some follow through until success is attained while others drop out. That is to say, "Why do attractive programs which involve excellent teaching techniques work with some individuals and fail with others?" Concern for these human factors must hold a sacred place in the minds of future planners.

UNESCO has been conducting studies in media through more than twelve agencies. Many of the studies are beginning to shed light on why illiterates do not attend literacy classes as well as on methods and materials that work best.

Films, Loops, and Kinescopes

The film industry has progressed from silent to sound pictures, and films are produced in 8, 16 and 35mm in width. Television programs can be kinescoped on film and shown on the regular motion picture projector. All films have had to be shown through a projector which requires a trained operator. Loops have very much simplified this procedure for they enable the relatively untrained teacher or student to load and unload the machine.

Films are especially valuable in demonstrating concepts or skills in language and reading instruction which need the help of action or motion. They can be stored and used as needed. As a rule they are used for mass or group instruction. Sometimes silent films are used in conjunction with tapes or records. Individuals can even be helped to make their own to serve specific purposes. Sometimes this type of motivation succeeds when everything else fails.

The hardware is available as well as all kinds of films, loops, and kinescopes for teaching reading, writing, and spelling (35). Three major questions must be asked. How effective are they in helping to resolve the problem of illiteracy? How can they be made to be more effective? Are they worth the cost? Can they be successfully coordinated with total literacy programs?

Filmstrips and Transparencies

The filmstrip, called by various other names such as stripfilm, textfilm, filmslide, picture roll, and pictureel, is a roll of 35mm film which may contain from 10 to 100 frames arranged in sequence. Pictures may be black and white or in color with or without sound. The filmstrip is one of the most popular of the audio-visual aids in the classroom. The tape recorder enables the teacher to add sound accompaniment.

Prepared transparencies are available for purchase, and others can be made by teachers and pupils who write or draw on 10 x 10 acetate sheets with wax pencils. Companies that produce them are listed in the Grade Teacher for May-June (35). Transparencies of photographed pictures can also be made in just a few minutes.

These are flexible materials that are less expensive to produce than films and television. They encourage creativity on the part of the teacher and pupils. They are being used more and more widely in teaching reading, writing, spelling, and the structure of language.

Tapes, Cassettes, and Records

Tapes, cassettes, and records play an important role in English teaching because they are capable of reproducing the sounds of the language accurately. When learners are in the process of decoding in reading or of listening to the sounds of the language in an attempt to spell words, these materials can be very helpful. They greatly facilitate independent study (28). They are used with adults (110) as well as with children. They have been successfully used in combination with printed materials (35). The talking books, which are now sold in many bookstores, are products of such combinations. They are to be found in schools, homes, and libraries.

Teaching Machines -- Electrical and Non-electrical

The teaching machine is another self-instructional device useful in literacy teaching, both in school and at home. The pupil uses a box-like arrangement, on the surface of which questions appear in an open space. He writes his answer in a space to the right and pulls a lever. A bit of plastic covers his answer while the correct answer appears next to it. He then compares his answer with the correct one. If he is right, he pulls a lever and goes on to the next question. If he is wrong, he immediately reads the statement again and learns the correct answer. Some machines also give him a total of the number he answered correctly. This procedure is referred to as programmed instruction and is sometimes used in modified form with printed materials only. Any failure thus far appears to be due to failure to produce effective programs rather than to a failure of method. The Harcourt, Brace, World programs, English 2600 and English 3200 are examples in printed form. Project Read of the Behavioral Research Laboratories is an example of a reading program that operates at all levels from kindergarten to twelfth grade. There are others (35).

Electrical machines are more complicated. Perhaps the best known machine is the talking typewriter (3512). It makes use of a talking page which is a combination of "a standard text and audiovisual desktop learning system". Disks carry audio for the related lesson book. The machine is especially intended to impart decoding skills and to teach fundamental reading skills. It is used with persons of any age who need the initial type of reading instruction which is given to non-readers and functionally illiterate persons.

The versatile computer holds great promise for testing and teaching on an individual basis. It stores data in a magnetic memory, follows a number of different pathways in executing a program, and retrieves information. Machine and computer-assisted programs for reading instruction have been developed by many companies such as: Accoustifons Corp., Bell and Howell, Borg-Warner Educational Systems, CBS Laboratories, Cenco Educational Aids, Craig Corporation, Dorsett Educational Systems, Electronic Futures, Hoffman Information Systems, Ken-A-Vision, Polyfax Educational Systems, Polythotechnics, RCA, Responsive Environments Corp., Rheem Califone, Singer Education and Training Products, 3M Company, and Westinghouse Learning Corporation (35). They are widely discussed by current authors (26,57,91,95,96,113). One report of a study to determine the role of media in self-instruction has been written by Linck (62).

The teaching machine calls for continuous active participation on the part of the learner. He proceeds as fast as he can. He is aware of errors as soon as he makes them and therefore corrects his work as he goes. Awareness of his own progress motivates him to keep going. Little has been done to apply the principle of self-selection of the material to be read so that interest factors do not seem to carry great weight in the procedure. This may, of course, be a weakness.

Programmed instruction and computer-assisted programs attract a great deal of attention at present because they answer a need to individualize instruction, to lead teachers away from mass instruction which deals with all learners as though they were alike. Computers may test individuals, diagnose, and show where to take hold in improving reading ability. They may suggest appropriate materials to use after a diagnosis has been made. They may reinforce drill-type learning in both reading and spelling. They may indicate speed of reading and comprehension at different reading levels. Sewer and Stolurow (91) described both in print and by means of a flow chart the operation of the Harvard Computer-Aided Instruction (CAI) Laboratory which is part of the larger instructional system named ORACLE (Operationally Relevant Activities for Children's Language Experience). The systems team included two psychologists - one with knowledge of language development and one with knowledge of measurement, learning theory, and transfer of learning; a consultant psychologist; a readability specialist; and CAI programmers. ORACLE is on-line from IBA 1050 terminals or teletypes. Its purposes are (1) to diagnose reading difficulties, (2) prescribe remedies, and (3) provide remedial treatment. It claims to personalize each student's programs, to allow for teacher selection of the mode of program presentation from a number of options and to contain intraprogram flexibility. Results obtained thus far appear to encourage further investigation but much remains to be done in developing and evaluating interactive programs for teaching literacy skills.

Zinn (112) has recommended (1) that cost effectiveness be studied by comparison with less expensive alternatives and the means of doing this, (2) that researchers work toward a situation in which instructional objectives and student characteristics determine instructional strategy, (3) that more use be made of "general-purpose systems and problem-solving environments" such as BASIC at Dartmouth and APL at Watson Research "which mix problem solving and tutorial modes", and (4) that continued effort be exerted to translate instructional programs without "imposing restrictions on innovative ideas for language or strategy".

Truly, it is difficult to believe that with all of this technological equipment and the massive teacher-training programs in this nation there are millions of illiterates among us. What is fundamentally wrong with our planning and expenditure of money?

THE ROLE OF THE UNIVERSITIES AND TEACHER COLLEGES

Universities and teacher colleges, concerned with the education of personnel in the field of language and reading instruction must provide leadership immediately and in unprecedented ways if a Breakthrough to Literacy is to be our moon target for the 70's. Those located in areas of high illiteracy in the inner cities must expect to carry much of the burden. They will need the full support of the President and Congress, the United States Office of Education, state and city governments, local school systems, and all other cooperating institutions, as well as experts in allied fields. The responsibility for teacher education should be a truly cooperative venture. Personnel for "future-planning" teams should be selected from among the most qualified in the nation to map out strategies for the education of leaders and ways of operating to reach the goal of this great project.

Many old policies must be laid aside. The youth of the nation now in our universities and colleges should be enlisted as active partners in this great undertaking; the generation gap must be bridged by people with insight working toward a common goal. Instead of spending energy "being against", the time has come to be constructively "for something" worthwhile.

To achieve what is now possible, many old policies and practices must be laid aside. It is necessary to turn thoughts from the "good old days" to achieving what the youth of our nation want and what the future appears to promise. Adequate exploration of the possibilities of cybernetics, programmed instruction, teaching machines, electronic operations, and the many exciting teaching aids will lead the entire profession of English teachers in new directions. Teachers will still be needed to deal with the human problems which arise in the teaching situation--the individuals who lack incentive to learn, those who fail to make progress, and those who show an inclination to drop out of school before they should. The success of the future teacher may well be judged more in terms of how he handles such human problems than how he teaches skills which might be done better by machines. The years ahead will call for greater emphasis on human understanding and ways of working together.

Obviously, future teachers of high caliber will be needed with deeper insight and skills. Teachers will be more specifically trained for the work to which they are assigned. Smaller classes will not always be the answer. The good teacher of English and reading may have larger numbers of students under his control, be paid better for his work, and have competent assistance. The less competent ones will either find a different niche somewhere in the profession or turn to other fields of endeavor for which they are more adequately suited. As the profession moves more clearly into the realm of accountability to the public, these become the inevitable facts. The pressure will rest on the universities and teacher training institutions for the competent education of personnel at all levels of the profession. Drastic reforms must be forthcoming to meet the new demands. We now have what is demanded for a successful breakthrough to literacy. We need only the determination to attain the goal, the same kind of determination the nation showed in getting to the moon.

What Research Says to the Universities and Colleges

An abundance of research findings has been assembled in the 60's to prepare the way for this project of the 70's. Studies pertaining to the need for this project, trends, and technological advances have been discussed previously. Emphasis can now be placed on research concerning the state of teacher education and the profession itself. The International Reading Association and the National Council of Teachers of English have worked diligently and successfully in attempting to get to the root of the dilemma in which we find ourselves. Their efforts have been enhanced by those of Foundations such as Ford and Carnegie as well as by the United States Government.

The most significant research regarding the teaching of reading in schools and colleges has been undertaken by Austin. The first study by Austin and Morrison (4) examined the collegiate preparation of reading teachers and concluded that the graduating students were not always adequately prepared to teach children to read. The authors found it necessary to make twenty-two proposals for improvement. The second study by Austin and others (5) attempted to discover what kind of guidance the teachers got when they entered schools, what methods and techniques they were expected to use, and what role administrators played. This study resulted in forty-five recommendations. Later, Austin wrote an article concerned with the professional training for reading personnel (6) in which she discussed various aspects of the undergraduate, in-service, and post-baccalaureate training of reading teachers. She included a special proposal for a sixth-year program for reading specialists. Attention was likewise directed to such matters as state certification, the preparation of college reading instructors, and the training of paraprofessionals for assistance in reading instruction. She summarized succinctly the forward steps of organizations, foundations, and the government in this respect.

In a two-year study of teacher education, Conant found diversity of opinion and practice in institutions of higher learning and much disagreement regarding programs for prospective teachers. He made twenty-seven recommendations and called for drastic changes. Among these was a suggestion that a minimum of three semester hours in the teaching of reading be required of elementary teachers and twice that amount for teachers of early childhood education.

The most important study relative to the improvement of literacy education from the standpoint of English teaching has been that by Corbin and Crosby (17) who reported on the work of the NCTE Task Force on teaching English to the disadvantaged. They found the following programs to be concerned with teacher education as it relates to literacy instruction:

Berkeley, Calif.	Span Project of the Graduate Internship Program in Teacher Education
Fresno, Calif.	Compensatory Education
Los Angeles, Calif.	Project Teach

New Haven, Conn.	Urban Education Studies Project
Coral Gables, Fla.	Teacher Education Project
Indianapolis, Ind.	Research and Teacher Training
Baltimore, Maryland	Disadvantaged Youth
Ann Arbor, Michigan	An English Program for Training Schools
Detroit, Michigan	Preparing Teachers for Disadvantaged Children
	The Marcy Trowbridge Project
	The Hutchins Junior High School Project
	Pre-Teaching Laboratory Experience with the Detroit Urban League
	Corktown Remedial Reading
	James Couzens-Mercy College of Detroit Spelling Project
	The Disadvantaged Child and the Language Arts
Hanover, N.H.	ABC Teacher Institute
Buffalo, New York	Continuation of Ford Foundation Pilot Project
Ithaca, New York	Project Literacy
New York, N.Y.	Comparing Reading Approaches in First Grade Teaching of Disadvantaged Children (CRAFT)
	Gateway English: Hunter College Project English Curriculum Center
	Information Retrieval Center on the Disadvantaged-Project Beacon
Cincinnati, Ohio	Continuation Education
Cleveland, Ohio	Pace, Elementary School Library Program
Kent, Ohio	Project Headstart Orientation Workshop
Philadelphia, Pa.	Great Cities School Improvement Program
Austin, Texas	USOE Cooperative Research Project #2648, Reading Instruction for Spanish-Speaking Beginners
Brigham City, Utah	English as a Second Language

They made the following ten recommendations:

"1. That every reasonable measure be taken to establish, especially at the local level, lines of communication and bonds of cooperation among persons, organizations, and institutions working with the disadvantaged.

2. That oral language receive greater stress in language instruction for the disadvantaged at all levels of education, from preschool through adult.

3. That at all levels of instruction the English curriculum for disadvantaged students include appropriate imaginative literature chosen and presented with these students in mind.

4. That children be permitted to operate in the dialect of their community at the lower levels of elementary school education, and that direct instruction in the use of standard informal English be begun no earlier than the intermediate elementary grades.

5. That policies of teacher placement be revised where necessary to enable school principals and project directors to play a direct role in recruiting teachers for positions in schools for the disadvantaged.

6. That greater financial support be given to school programs for the provision of ample materials and personnel.

7. That administrators and project directors develop deliberate programs to make available to teachers reports on new research and experimentation.

8. That both preservice and in-service teacher education programs develop courses dealing with the application of current educational theory to classroom teaching, especially in the study of language.

9. That the problem of developing adequate structure and continuity throughout all levels of school, from preschool through twelfth grade, be the responsibility of the school district.

10. That teachers of the disadvantaged possess at least a working knowledge of developments in structural and transformational grammar, in social dialectology, in psycholinguistics, and in language and cognitive development."

Fundamental changes are being projected for teacher education in general. Some of these are spelled out in the USOE Elementary Teacher Education Models proposed by eight universities, and can be obtained at the United States Printing Office in Washington. Harris (47) reviewed nation-wide efforts to improve pre-service programs for teacher education, described, and contrasted model programs. All of these efforts might well be reviewed in relation to their potential for producing functionally literate individuals as well as individuals with higher levels of literacy.

When institutions of higher learning fail to act in a forthright manner upon important recommendations such as those reported here, is it any wonder that students and community leaders begin to make drastic demands for change? Demands in this field are closely interwoven with the human rights of man for a sound basic education. The general education of teachers will not suffice. A significant part of that education must be very specific in nature and prepare them for the tasks they face in actual teaching situations.

Suggestions for an Action Program

The President of the United States, state governors, senators, congressmen, and the United States Office of Education must first recognize Breakthrough to Literacy as a project worthy of high priority consideration in the 70's. Adequate appropriation will be needed for careful planning of strategy and then for the implementation of plans. Without the first step, great sums of money can be wasted with a minimum of results. Overall planning would call for the use of technology at every step of the way. There would be differentiation between what would be put into strictly experimental centers and what has been proven to be sufficiently effective to be used on a more general basis. Cost, too, in terms of value to be received, must be a prime consideration.

On a nationwide basis there is need to expand the network of colleges working intensively in the field of English and reading. More programs should be set up to educate literacy educational specialists as has been done at Syracuse University and Baylor (21). More fellowship programs in reading and English should be established. At a time when there is unusual need for highly trained leaders, Dale (22) has claimed that there are only four reading fellowships providing for 100 people. There should be at least one thousand in a year and the number should be increased from year to year. Standards of certification for all persons concerned with the teaching of English from the early childhood levels through the college and university, including paraprofessionals, aids, supervisors, and consultants, should be established and put into operation. For literacy projects, the NCTE and IRA should work co-operatively. Each has already made some attempt to work on this problem. Supervisors and consultants at the elementary level are sorely in need of greater recognition. If good teachers are to be encouraged to seek better training in sixth-year and doctorate programs, they should be rewarded by status and salary. IRA and NCTE have been making a commendable attempt to publicize the vast amount of material assembled by ERIC through their journals. It is essential that workers in the field everywhere make maximum use of information and materials of retrieval centers such as ERIC.

Universities and colleges in areas of high illiteracy have a responsibility to give high priority to the development of effective literacy programs. Comprehensive master plans for the education of school and college personnel are required just as much as was a master plan to send men to the moon in the 60's.

Some ideas are coming into focus weekly on TV that might be used in the process of forming a master plan, but each is carried on independent of others. A group of students expresses views on one program, professors on another, and men from community organizations on another, but the topics are neither related nor coordinated to result in effective action on any one problem. In curriculum development, where children are involved, the public needs to be carried along in the planning, and various groups should be used for that purpose. More general cooperative planning can be done through TV and committee work that will involve the university, the public school system, students and student organizations, teachers and teacher organizations, community organizations and leaders, systems engineers and interdisciplinary experts. One city might be used as an example of such planning as the rest of the nation listens, thinks, and adapts ideas. All movement would be in the direction of solving the literacy problem. There would be overall planning and also specific planning in relation to the training of various types of personnel involved in the literacy programs such as: strategy engineers and technological experts with a specific type of job to perform; administrators, supervisors, and consultants in the English language field; student teachers; in-service teachers; paraprofessionals and aids.

Overall planning requires forward movement on all levels of the profession concurrently. What changes can be made in the pre-service education of teachers is greatly dependent on what changes can be made at supervisory and administrative levels. To plan for one level without the other will lead to the disasters of the past. How can more meaningful education in the various tracks at specific levels be developed? How many years of professional training does each group need? What kind? When shall it begin? When will liberal arts education be given in the various tracks? What kind? What shall be required? What electives? Can the training period for some be shortened? Can a lengthy period of training for teachers who remain three years or less on the job be justified?

A few of the problems to be considered are:

1. How to establish a steering committee in a city or university to study the recommendations of the reports included in this study and consider them in building a program to educate for literacy with attention to the population involved.

2. How to make a survey to determine the status of literacy in an area in terms of the number of complete illiterates and functional illiterates.

3. What is considered to be an effective teacher of literacy. Harris (45) raised six main questions about the effective teacher, namely:

   a. What criteria can we use to measure teacher effectiveness?
   b. Can we really distinguish degrees of competence?
   c. What forms of motivation or class management produce superior results?
   d. What forms of cognitive teacher behavior are related to good achievement?
   e. How can the beginning teacher be helped to develop teaching skill?
   f. How can the experienced teacher keep his interest and enthusiasm high?

4. What is a well-equipped English and Reading Laboratory? How can it be set up? At present, laboratories for teaching foreign language usually surpass those for the teaching of our native language. Why?

5. Shall live TV programs be brought from schools to college classes to save some of the running around now done in visiting schools for observation purposes?

6. In what ways can large numbers of students be taught at one time more effectively by using TV, lecture, transparencies, and other visual aids.

7. What facilities are available, effective, and worthy of the cost to help students develop power to work independently through programmed materials, independent assignments, non-electric machines and computers?

8. How to improve pre-service teaching. Harris (45) has suggested three new developments: self-analysis of one's own recorded teaching, micro-teaching, and programmed tutoring. Woodward (111) reported a significant three-year experiment in San Jose College which appeared to demonstrate that the use of closed-circuit TV observation of public school classrooms "can relieve many of the problems associated with direct observation of classes". Thus the college can be spared three-fourths of its problems in supervising in-person observation requested by the institutions. Pula (84) reviewed thirteen studies relative to the use of television for observation and teaching.

9. How to use simulation techniques in the training of student teachers, supervisors, and consultants. SRA and other producers have been experimenting with simulation as a means of improving student teaching experiences. Simulation may be thought of as the selective representation of reality or the imitation of real-life situations. Crucial aspects of real teaching situations are selected, shown on the screen, and discussed and/or acted out. Thus students have an opportunity to learn directly as a result of their experience in the simulated situation.

10. How to improve graduate research classes at the college. Gates (32) said, "Don't waste time setting up control group classroom experiments". What those students are in a position to do he considers to be usually quite faulty as experiments. Make research add up to something worthwhile. Robinson (85) claimed that there were more studies done on reading than any other activity, but in spite of this the major questions remained unanswered. The most productive questions have not been asked. Too much experimentation focuses on problems of minor import and are done in isolated situations. More should be done in relating and coordinating. There is a need for insightful experiences combined with logical deductions and for a consideration of the underlying philosophical principles. There is an urgent need for scholarly investigators to find solutions to problems.

The road to the eradication of illiteracy is more difficult in many ways than taking a trip to the moon. Barriers of long standing are in the way. In some respects there must be a complete reversal of traditional attitudes. Whole communities are close to the problems, and the human dignity of large numbers is involved. The astronauts had little of the past to upset. No one had been to the moon before. They could move directly to a task with all of the available technological aids. The first task of educators in a literacy project is to recognize the great backlog, the conglomeration, the establishment that has

been built up through years and years by a patch-upon-patch method. Problems are getting to be insurmountable; money buys less and is not plentiful; cooperative endeavors are essential if education is to be put on a workable track. The time has come for cooperative research on an enormous scale to be pointed directly to the problems faced with intent to resolve them. Priorities must be established for the spending of available money. No longer can business go forward as usual. It is uneconomical to move from one crisis to the next without a comprehensive plan directing the way. Nevertheless, effort must be expended to attain the overall literacy goal in this decade and at all costs. No man is truly free in our society who cannot read and write.

TOWARD A TECHNOLOGICAL BREAKTHROUGH TO LITERACY

Selected Bibliography

1. Alesi, Gladys and McDonald, Mary C. "Teaching Reading to Illiterate Adults". College Adult Reading Instruction, Editor Paul D. Leedy. Newark, Delaware: International Reading Association, 1964, p. 95.

2. Allen, J.E. "Target for the 70's: the Right to Read; Interview". American Education 5:2-4, December 1969.

3. Aubertine, H.E. "Use of Micro-teaching in Training Supervising Teachers". The High School Journal 51: 99-106, November 1967.

4. Austin, Mary, et al. The Torch Lighters: Tomorrows Teachers of Reading. Cambridge, Mass.: Harvard University Press, 1961.

5. Austin, Mary, and Coleman Morrison. The First R: The Harvard Report on Reading in Elementary Schools. New York: The Macmillan Company, 1963.

6. Austin, Mary. "Professional Training of Reading Personnel". Innovations and Change in Reading Instruction, Sixty-seventh Yearbook of the National Society for the Study of Education, Part II. Chicago, Ill: University of Chicago Press, 1968. p. 357-397.

7. Barnes, R.F. "Materials, Methods and Programs for Literacy Education". Review of Educational Research 35: 218-23, June 1965.

8. Beavan, K. "Crusade to End Illiteracy". Times Educational Supplement-London 2843: 14, November 14, 1969.

9. Bernard, T.L. "World Illiteracy and International Development". Adult Leadership 16: 166-81, November 1967. Biblio.

10. Brocki, A.C. "New Literature for Inner-city Students". English Journal 58: 1151-61, November 1969.

11. Burnet, Mary. ABC of Literacy. New York: Unesco Publications Center, P.O. Box 433, 1965. 64 p. 30 cents.

12. Canadian Broadcasting Corporation and the Metropolitan Television Association of Toronto. Let's Speak English - A T.V. Series. Toronto, Canada; the Broadcasting Corporation, 1962.

13. Chall, J.S. and Durkin D. "What School Administrators Should Know about Early Reading Programs; Review of Learning to Read: the Great Debate." Nation's Schools 81; 126 +, March 1968.

14. Chall, Jeanne. Learning to Read: The Great Debate. New York: McGraw Hill, 1967.

15. Cheissoux, Louis (Chief Editor) "Literacy Training and Development" Unesco Chronicle. New York, Unesco Publications Center, P.O. Box 433, Vol. 14, No. 3, March 1970.

16. Cooney, J.G. "Sesame Street: Tuning TV toward Preschool Kids. " Compact 3:13, December 1969, Ill. Ed. 58:123, November 1969.

17. Corbin, Richard and Crosby, Muriel. Language Programs for the Disadvantaged. Champaign, Ill.: National Council of Teachers of English, 1965.

18. Cortright, R.W. "Laubach Method." Wilson Library Bulletin 40: 51-4, September 1965.

19. Cortright, Richard W. Literacy U.S.A.: A Manual for Americans.Syracuse: New Readers Press, 1965.

20. Cortright, R.W. "Subject of Literacy Has Come of Age." "Reading Teacher 9-13, October 1965.

21. Cortright, R.W. "Professional Preparation in Literacy Education." Journal of Teacher Education 16: 290-3, September 1965.

22. Dale, E. "Future of Reading." Reading Teacher. 23:205-16+, December 1969.

23. D'Annunzio, Anthony. "The Effects of the Talking Typewriter on Psycholinguistic and Perceptual Behavior in Early Childhood." Abstracts of the Fifteenth Annual Convention of IRA, Newark, Delaware: The International Reading Association, May 1970, p. 22-23.

24. Davis, Griffith, J. "The Challenge of Educational Technology in Underdeveloped Countries". Audiovisual Instruction 15: 64-67, March 1970.

25. Dentler, R.A. and Warshauer, M.E. Big City Dropouts and Illiterates. New York: Center for Urban Education, 1965.

26. Durr, William K. "A Computer Study of High-Frequency Words in Popular Trade Juveniles." Abstract of Fifteenth Annual Convention of IRA. Newark, Delaware: The International Reading Association, May 1970, p.26.

27. Edwards, John L. "Reading for Disadvantaged - Perspectives for Progress." Abstract of Fifteenth Annual Convention of IRA.Newark, Delaware: International Reading Association, May 1970, p. 27.

28. Elkins, Deborah, and Hickerson, Thelma. "The Use of the Tape Recorder in Teacher Education." Journal of Teacher Education 15:432-38; December 1964.

29. Ellson, Douglas. "Effects of Programed Tutoring of Elementary Reading on Reading Achievement, Promotion and Assignment to Special Education Classes." Abstracts of Fifteenth Annual Convention of IRA. Newark, Delaware; International Reading Association, May 1970, p. 28.

30. Erdos, R.F. Teaching by Correspondence. New York: Unesco Publications Center. P.O. Box 433, 1967.

31. Fitzgerald, L.A. "Programs for the Adult Illiterate in Selected Areas". Conference on Reading, University of Pittsburgh Report 22: 62-7, 1966.

32. Gates, A.I. "Teaching Reading Tomorrow." Reading Teacher 23: 231-8, December 1969.

33. Goldberg, Miriam. "Broadening Literacy: The Responsibility of the School." The Educationally Retarded and Disadvantaged. The Sixty-sixth Yearbook of the National Society for the Study of Education, Part I 1967. p. 356-361.

34. Goodman, Edith Harwith, editor. Automated Education Handbook. Detroit: Automated Education Center, 1965. (looseleaf)

35. Grade Teacher. "The Right to Read - A Convention in Magazine Form" Grade Teacher 87: 9,53-154, May-June 1970.

36. Gray, William S. The Teaching of Reading and Writing. (Second Edition) New York: Unesco Publications Center, P.O. Box 433, 1969.

37. Greenhill, Leslie P. "Introduction." Abstracts of Research on Instructional Television and Film: An Annotated Bibliography. (Compiled by Donald W. MacLennan and Christopher J. Reid.) Authorized by the U.S. Government under Title VII, Part B, of the National Defense Education Act of 1958. Stanford, Calif.: Institute for Communication Research, Stanford University, April 1964. Unpaged. (Mimeo.)

38. Greenhill, L.P. "Programmed Instruction and Instructional Television". Educational Screen AV Guide 46: 24-5, June 1967.

39. Gudschinsky, Sarah C. Handbook of Literacy. Norman, Okla: Summer Institute of Linguistics, University of Oklahoma, 1962. 137 p.

40. Hagerman, B. and Saario. "Non-Standard Dialect Interference in Reading." Claremont Reading Conference Yearbook 33: 158-67, 1969.

41. Hahn, Harry T. "A Summary of Seven Analytic Studies of the Written Compositions of 1200 Young Authors". Abstracts of the Fifteenth Annual Convention of the IRA. Newark, Delaware: The International Reading Association, May 1970, p. 35.

42. Hall, Eugene. Basic Literacy Series for Adults. New York: Regents Publications of Simon and Schuster, 1970.

43. Haramati, S. "Teaching Illiterates in Israel." Adult Leadership 16: 292-4, February 1968.

44. Harlan, R.W. "Adult Education in the U.S.S.R." Adult Leadership 16: 51-4+, June 1967.

45. Harris, A.J. "Effective Teacher of Reading"." Reading Teacher 23: 195-204, December 1969.

46. Harris, Albert. "Comparison of Formulas for Measuring Degree of Reading Disability." Abstracts of Fifteenth Annual Convention of the International Reading Association. Newark, Delaware: The International Reading Association, May 1970, p.38.

47. Harris, Harry A. "Changing Teacher Education Programs through Research and Development (Pre-service)." Abstracts of the Fifteenth Annual Convention of IRA. Newark, Delaware: The International Reading Association, May 1970, p.38.

48. Hayes, Alfred, S. Recommendations of the Work Conference on Literacy. Washington, D.C.: Center for Applied Linguistics, 1964. 49 p.

49. Heusner, Henry C. A Study of the Utilization of Curriculum Guides as Related to Selected Factors in Their Planning and Construction. Order No. 64-5101. Detroit, Michigan: Wayne State University, 1963. 242 p.

50. Howards, Melvin. Read Your Way. New York, 405 Lexington Avenue 10017: Manpower Education Institute, 1968.

51. Huus, Helen. "Innovations in Reading Instruction at Later Levels." Innovation and Change in Reading Instruction, The Sixty-seventh Yearbook of the National Society for the Study of Education, Part II. Chicago, Ill.: University of Chicago Press, 1968.

52. International Reading Association. Abstracts of the Fifteenth Annual Convention. Newark, Delaware: International Reading Association, 1970.

53. Jeffries, Sir Charles. Illiteracy: A World Problem. New York: Frederick A. Praeger, 1967.

54. Johnson, Harry W. "Gestation of a Spelling Word". Abstracts of the Fifteenth Annual Reading Convention. Newark, Delaware: The International Reading Association, May 1970, p. 42.

55. Johnson, Joseph C. Jacobson, Milton D. and Beber, James. "An Experiment in Reading Readiness and Retraining: An Analysis of the Intellectual and Language Facility Expansion of Certain Socially Neglected Early Grade Black Students." Abstracts of the Fifteenth Annual Convention of IRA. Newark, Delaware: International Reading Association, May 1970, p. 27.

56. Johnson, L.S. "Newspaper: A New Textbook Every Day." Journal of Reading 13: 107-12, November 1969.

57. Karlsen, Bjorn. "Computerized Prescriptive Printouts for Diagnostic Reading Tests." Abstracts of the Fifteenth Annual Convention. Newark, Delaware: International Reading Association, May 1970, p. 46.

58. Kasdon, L.M. and N.S. "Television: Vehicle for Literacy Training in Mexico." Adult Leadership 16: 91-2+, September 1967.

59. Knudson, R.L. "Involvement via Videotape: Specialized Language Activities Project." AV Instructor 14: 52-3, December 1969.

60. Koffler, Sandy (Editor). "Literacy." The Unesco Courier, April 1968. (The work of the International Consultative Liaison Committee for Literacy.)

61. Laubach, Frank C., and Laubach, Robert S. Toward World Literacy. Syracuse, New York: Syracuse University Press, 1960. 355 p.

62. Linck, Norman. "Educational Media and Independent Study." Audiovisual Instruction, 15: 36-37, February 1970.

63. Lloyd, Alan C. "Typewriting as a Reinforcement to Reading in the Intermediate Grades." Abstracts of the Fifteenth Annual Convention of the IRA. Newark, Delaware: International Reading Association, May 1970, p. 51.

64. Lloyd, Helene and Others. Ideas in Education. (Packet of 4x6 cards giving brief descriptions of innovative programs and printed materials including computer technology.) New York: Division of Funded Programs, Board of Education, 1970.

65. Locatis, Craig N. and Smith, Frank A. "Technologists and Their Implications for Education." Audio-Visual Instruction 14: 14-15, January 1970.

66. Luke, R.A. "Literacy through Television; Operation Alphabet." Audiovisual Instruction 11: 260-2, April 1966.

67. Luke, R.A. "Responsibility of the Teaching Profession for the Reduction of Mass Illiteracy." Reading Teacher 19: 14-17, October 1965.

68. Lyon, N. "ABC of Literacy." New York State Education Department 55: 10-11+, March 1968.

69. MacDonald, Bernice. "Libraries and Literacy Activities." Wilson Library Bulletin 40: 48-50, September, 1965.

70. Mangano, Joseph A. "GED Examinations." Abstracts of the Fifteenth Annual Convention of the IRA. Newark, Delaware: The International Reading Association, May 1970, p. 51.

71. Mangrum, Charles T. "A Comparison of Two Vision Screening Batteries for Clinical and Classroom Use." Abstracts of the Fifteenth Annual Convention. Newark, Delaware: International Reading Association, May 1970, p. 46.

72. McCracken, Robert A. "Through Research and Development (In-Service)." Abstracts of the Fifteenth International Reading Convention. Newark, Delaware, May 1970, p. 52.

73. McManus, Anastasia. "The Denver Pre-reading Project Conducted by WENH-TV." The Reading Teacher 18: 22-26, October 1964.

74. McNeil, J.D. "Research Strategies in the Teaching of Reading." Claremont Reading Conference Yearbook 33: 185-90, 1969. (Bibl.)

75. Moore, William. "A Program for Systematic Instructional Improvement." Audiovisual Instruction 15:28-30, February 1970.

76. National Association of Public School Adult Educators. Operation Alphabet: TV Home Study Book. Washington 6, D.C. 1201 Sixteenth St. N.W.: The Association, 1962. $1.00. (Workbook for use with or without TV).

77. New York City Board of Education. Teaching Dialogues: English as a New Program for Adults. (2 vol.) Brooklyn, New York: The Board of Education, 1966.

78. Ohlinger, J. "Adult Basic Education Programs and the Liberal Arts Approach." Adult Leadership 17:417-19, April 1969.

79. Otto, Wayne and Ford, David. Teaching Adults to Read. Boston, Mass.: Houghton Mifflin Co., 1967.

80. Parke, Margaret B. "Australia's School of the Air." Instructor Magazine, January 1962, p. 28, 76B, 82.

81. Parke, Margaret B. "Invisible Reading Class in Australia's Outback." The Reading Teacher 18:124-128, November 1964.

82. Parke, Margaret B. "Teaching Materials and Their Implementation." Review of Educational Research 36: 380-388, June 1966.

83. Porter, Willis P. "Education for Economic Development in India and Pakistan." Phi Delta Kappan 47: 201, December 1965.

84. Pula, F.J. "Using Television for Observation and Teaching." Improving College and University Teaching 16: 58-9, Winter 1968. (Biblio.)

85. Robinson, Helen M. (Editor) "The Next Decade." Innovation and Change in Reading Instruction. Sixty-seventh Yearbook of the National Society for the Study of Education, Part II. Chicago, Ill.: University of Chicago Press, 1968. Chapter XI, pp. 397-430.

86. Rosler, H.E. and Franzen, C.K. "Uses of Television in Teacher Education." Audiovisual Instruction 12: 1050-3, December 1967.

87. Roucek, J.S. "Role of Literacy in Social Change." International Review of Education 13. No. 4:483-91, 1967. (Biblio.)

88. Rutgers University Graduate School of Library Service. Bibliography of Research Relating to the Communication of Scientific and Technical Information. New Brunswick, N.J. 08905: Rutgers University Press, 1967.

89. Schramm, Wilbur. Communication Satellites for Education, Science, and Culture. New York: Unesco Publication Center, P.O. Box 433, 1968. 23 p. $1.00.

90. Schramm, Wilbur and Others. The New Media: Memo to Educational Planners. Paris: Unesco and International Institute of Educational Planning, 1967.

91. Sewer, Blanche and Stolurow, Lawrence. "Computer-assisted Learning in Language Arts." Elementary English 47: 641-650, May 1970.

92. Spache, George D. "Contributions of Allied Fields to the Teaching of Reading." Innovations and Change in Reading Instruction. Sixty-seventh Yearbook of the National Society for the Study of Education, Part II, 1968, p. 237-29.

93. Spaulding, Seth. "The Effect of Literacy Programs in Research on Content, Methods, and Techniques in Education for Development." Review of Educational Research 38: 285-291, June 1968. (Bibliography)

94. Spaulding, S. "Unesco World Literacy Program: A New Strategy That May Work." Adult Education 16: 70-84, Winter 1966. (Bibliography).

95. Stolurow, L.M. "Computer-assisted Instruction." The Schools and the Challenge of Innovation, Supplementary Paper No. 28, Committee for Economic Development. New York: McGraw Hill, 1969. p. 270-319.

96. Stolurow, L.M. "Some Factors in the Design of Systems for Computer-assisted Instruction." Computer-assisted Instruction: a Book of Readings. (Atkinson and Wilson, Editors) New York: Academic Press, 1969, p. 65-93.

97. Torkelson, Gerald M. and Driscoll, John P. "Utilization and Management of Learning Resources." Review of Educational Research 38: 129-159, April 1968.

98. Trow, William Clark. Teacher and Technology: New Design for Learning. New York: Appleton-Century-Crofts, 1963. 198 p.

99. Tyler, I.K. "Combating Illiteracy with Television." Audiovisual Communication Review 13: 309-24, Fall 1965.

100. United Nations Educational, Scientific and Cultural Organization. Literacy: Progress Achieved throughout the World in 1967-69. Provisional Version,(mimeographed) Paris: The Organization, August 1969.

101. United Nations Educational, Scientific, and Cultural Organization. World Survey of Education. Paris: Unesco, 1958. p.17.

102. United States Office of Education. "Educational Television the Next Ten Years." Washington, D.C.: United States Office of Education Publication. 1965. 375 p.

103. United States Office of Information. Let's Learn English, Let's Speak English, Adventures in English. Washington, D.C.: The United States Office of Information.

104. Veatch, Jeannette. Individualizing Your Reading Program. New York: G.P. Putnam Sons, 1959.

105. Veatch, Jeannette and Acinapura, Philip, J. Reading in the Elementary School. New York: The Ronald Press Co., 1966.

106. Wagoner, R.L. and MacKenzie, B. "Television in Teacher Education" Educational Technology 9:66-8, December 1969.

107. Wallace, Mary, C. Literacy Instructor's Handbook: An Adventure in Teaching. Chicago: Follett Publishing Company, 1965.

108. Washburne, Carleton and Marland, Sydney. The History and Significance of an Educational Experiment. Englewood Cliffs, N.J.:Prentice-Hall, 1963, p. 45-63.

109. Witty, P.A. "Principles and Practices in Compensatory Education: Instruction of Illiterate and Non-English Speaking Men during World War II." National Society for the Study of Education Yearbook. Part I: 72-82, 1967.

110. Wood Judith. "Using the Tape Recorder in Teaching Adults to Read." Journal of Reading 11:528-31, April 1968.

111. Woodward, John C. "The Use of Television in Teacher Education." Journal of Teacher Education 15:56-60, March 1964.

112. Zinn, Karl L. "Instructional Programming Languages." Educational Technology: The Computer and Education 10: 43-46, March 1970.

113. Zinn, Karl. "Computer Technology for Teaching and Research on Instruction." Review of Educational Research: Growth, Development, and Learning. 37:618-634, December 1967. (Biblio.)